

February 15, 2002

Rule 37 Case Nos. 0228602, 0228604 and 0228679  
District 7-B

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Applications of LCS Production Company for Exceptions to Statewide Rule 37 to Drill its Nos.  
1, 2, & 4 Wells, Brooks Lease, Mulberry Canyon (Cisco) Field, Nolan County, Texas.

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**APPEARANCES:**

**FOR APPLICANT:**

Philip Patman, Attorney  
Steve Harrell, Geologist  
Dale Miller, Engineer  
Robert MacMillan, Engineer

**APPLICANT:**

LCS Production Company  
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**FOR PROTESTANT:**

Mike McElroy, Attorney  
Rick Johnston, Engineer

**PROTESTANT:**

Chisolm Exploration, Inc.  
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**REVISED PROPOSAL FOR DECISION**

**PROCEDURAL HISTORY**

<b>APPLICATIONS FILED:</b>	June 11 & 12, 2001
<b>NOTICES OF HEARING:</b>	July 18, 2001
<b>HEARD BY:</b>	Mark Helmueller - Hearings Examiner Donna Chandler - Technical Examiner
<b>ORIGINAL HEARING DATES :</b>	August 23 & 24, 2001
<b>TRANSCRIPT RECEIVED:</b>	August 28, 2001
<b>RECORD CLOSED:</b>	September 10, 2001
<b>ORIGINAL PFD CIRCULATION DATE:</b>	October 5, 2001
<b>HEARING REOPENED:</b>	November 5, 2001
<b>FURTHER HEARING HELD:</b>	December 17, 2001
<b>TRANSCRIPT RECEIVED:</b>	January 23, 2002
<b>REVISED PFD CIRCULATION DATE:</b>	February 15, 2002

**STATEMENT OF THE CASE**

LCS Production Company (“LCS” or “Applicant”), seeks exceptions to Statewide Rule 37 to drill its Nos.1, 2 and 4 wells, Brooks Lease, in the Mulberry Canyon (Cisco) Field, Nolan County, Texas. The Mulberry Canyon (Cisco) Field is subject to spacing requirements of 330 feet minimum spacing to the nearest lease line and 933 feet minimum spacing between wells. The subject lease is rectangular and locations regular to lease-lines are available. All three proposed locations are 50 feet west of the eastern lease line. The Brooks No. 2 well is located only 555 feet from the Brooks No. 3 which is currently producing from the Mulberry Canyon (Cisco) Field. The Brooks No. 4 is located only 396 feet from the Brooks No. 3. To comply with between well spacing requirements, LCS agreed to shut in the Brooks No. 3 upon completion of either the Brooks No. 2 or Brooks No. 4. Additionally, Well No. 2 and Well No. 4 are only 759 feet apart. Accordingly, an exception to the between well spacing requirement is also necessary if both wells are permitted at the proposed locations.

Field rules require 20 acre units. The Brooks Lease is depicted in all three applications as 115.76 acres. Accordingly no exceptions to Statewide rule 38 are required. A copy of the plat submitted by LCS with the Form W-1s (Application for Permit to Drill, Deepen, Plug Back, or Re-Enter) is attached.

The applications are protested by Chisolm Exploration, Inc. (“Chisolm” or “Protestant”). Chisolm is the operator of the offset tracts located to the east and north of the subject lease.

A proposal for decision recommending denial of the applications was issued on October 5, 2001. LCS moved to reopen the hearing to allow the submission of additional bottomhole pressure tests. The motion was granted and a further hearing was held on December 17, 2002.

**SUMMARY OF UNDISPUTED EVIDENCE**

The Mulberry Canyon (Cisco) Field was discovered in September 1998 with an original reservoir pressure of 1407 psi. It is undisputed that the original oil-water contact occurred at a subsea depth of -1580 feet. The parties also agree that in August 2001, the oil-water contact had moved up structure to a subsea depth of -1577 feet. The parties estimated in December 2001, that the oil-water contact now existed at a subsea depth of -1575 feet. It is undisputed that regular locations on LCS’ Brooks Lease would encounter the reservoir at a subsea depth of -1569 feet or approximately 6’ above the current oil-water contact. A copy of LCS’ structure map on which the examiners have appended the regular locations is attached.

The most recent production data submitted by the parties in December 2001 confirm that 772,622 barrels of oil and 299,633 barrels of water have been produced from the reservoir. There are currently 18 producing wells in the field run by three operators. As seen in LCS’ structure map, eight of the wells producing from the reservoir are located at or below the structural elevation for regular locations on LCS Brooks Lease: the Chisolm Texaco Nos. 1A, 2, 5, and 9; the Chisolm Brooks No. 1;

the Adkins Morrow No. 1; the LCS Morrow No. 1, and the LCS Brooks No. 3. One of these wells, the Adkins Morrow No. 1, at a subsea structural elevation of -1578, is producing at the maximum allowable of 100 barrels per day. The other five wells operated by Chisolm are producing between 69 and 71 barrels per day. The LCS Morrow No. 1 is producing 35 barrels per day at -1575 feet. LCS estimated the total cumulative production for the LCS Morrow No. 1 at 32,265 barrels. The LCS Brooks No. 3 is currently shut in.

#### **EVIDENCE PRESENTED AT AUGUST HEARING**

At the August hearing, the parties offered competing theories on the drive mechanism for the field. LCS argued that the field is under the influence of a strong water drive. LCS pointed to three factors in support of this conclusion: 1) the increase in the percentage of produced water; 2) the absence of a significant decrease in bottomhole pressure; and 3) a relatively constant gas-oil ratio (GOR). As to the first factor, LCS contended that the water cut for all wells in the field increased steadily from 16% in January 2001 to 34% in June 2001. LCS specifically relied on a water cut of over 90% reported in its LCS Brooks No. 3 well to further buttress this evidence. For the second factor, LCS noted that two bottomhole pressure readings taken in January 2001 and March 2001 were 1197 psi and 1194 psi. LCS claimed that these pressure readings were evidence that the reservoir pressure had leveled off, a further indication of the influence of a strong water drive. Finally, as to the third factor, LCS pointed out that the GOR for the field remained constant at approximately 100 cubic feet per barrel.

Chisolm conceded at the August hearing that the field does have a water drive component, however, it believed that the primary drive mechanism is solution gas. Chisolm argued that LCS' water drive analysis was flawed because it was based in large part on the production history for the Brooks No. 3. Chisolm compared the well with the production history of two other flank wells, the Chisolm Brooks Lease No. 1 and the Adkins Morrow No. 1. Both of these wells were producing at the maximum allowable rate of 100 barrels of oil per day in August 2001. Additionally, both wells were downdip from the Brooks No. 3 and encountered a thinner productive interval. Chisolm argued that if a strong water drive was influencing this field, that the two downdip wells should be performing worse than the Brooks No. 3, not significantly better.

Chisolm also argued that the production history for the Brooks No. 3 may be explained by an inefficient completion technique. Chisolm noted that other wells were completed with an additional cement squeeze. The wells were then reperforated. Chisolm believes that this completion technique minimizes the water intrusion. This completion technique was not used on the Brooks No. 3. Chisolm argues that this is a better explanation for the poor performance of that well.

Chisolm discounted LCS' reliance on bottomhole pressure readings as evidence of the strong water drive claiming that the bottomhole pressure readings presented at the original hearing were not sufficient to support the strong water drive theory. Chisolm also deemphasized the relevance of the constant GOR data, noting that the GOR data was taken fairly early in the production history for the field, and probably represents the fact that the field had not yet reached its bubble point.

### **EXAMINERS' PREVIOUS PROPOSED DECISION**

The proposal for decision circulated by the examiners in October 2001 recommended denial of all three of the applications for Rule 37 exceptions. The examiners agreed that the preliminary indications from the evidence supported the *theory* that the field is under the influence of a strong water drive. However, the examiners also found that the information was not sufficient to *conclude* that the field is under the influence of a strong water drive in light of contradictory evidence in the production history for wells in the field and the minimal movement of the oil water contact.

With respect to the GOR history, the examiners agreed with Chisolm's unrebutted evidence that because the bubble point had not yet been reached, the GOR history was not a reliable indicator of the drive mechanism for the reservoir. As to the bottomhole pressure information, the examiners found that extrapolating a conclusion that the reservoir is under the influence of a water drive from the pressures reported in January and March 2001 was premature. The examiners noted that additional reliable pressure information from wells completed within the recognized productive limits was necessary before a determination could be made regarding the primary drive mechanism of the reservoir, particularly where contradictory interpretations were possible from the available evidence.

### **APPLICANT'S POSITION AND EVIDENCE**

LCS seeks three Rule 37 exceptions to prevent confiscation in the Mulberry Canyon (Cisco) Field. LCS claims that each of the three exceptions is required because the Brooks Lease is downdip from the wells operated by Chisolm in the field. LCS argues that the field is a water drive and that any reserves located in the structurally higher pay interval between the minimum lease line spacing distance and the lease line will migrate updip. These reserves would then be recovered by the Chisolm wells.

LCS' structure and isopach maps show that wells at regular locations due west of the proposed exception locations would each lose 4 to 5 feet of structural elevation. Additionally, the pay interval thins on the western boundary of the field. The thinning would result in the loss of 2' of thickness for Well No. 4 and 4' to 5' of thickness in Well Nos. 1 and 2.

LCS estimates the reserves for the entire field under original conditions at 3.8 million barrels. Applying a recovery factor of 40%, the original recoverable oil in place is estimated at 1,525,560 barrels. LCS estimates that the oil in place underlying the Brooks Lease at original conditions totalled 299,276 barrels. Applying the same recovery factor of 40% yields 119,710 barrels for the original recoverable oil in place. LCS did not calculate the current recoverable reserves in place underlying the Brooks Lease, but did estimate that based on an oil-water contact of -1577 feet that the current recoverable reserves would be 80% to 90% of the calculated original recoverable oil in place, or between 95,768 and 107,739 barrels. LCS calculated that the three wells at exception locations would each have a cumulative recovery of 48,900 barrels.

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LCS calculated the cumulative recovery for its Brooks Lease based only on the performance history of the LCS Brooks No. 3 well. This well was completed in May 2001. In August 2001, it was producing an average of approximately 10 barrels of oil per day and 125 barrels of water. Based on this production data, LCS estimated the total cumulative production from the well at 7993 barrels. LCS argues that this is significantly less than the remaining recoverable reserves in place in August 2001 and therefore justifies the requested exceptions. The Brooks No. 3 is currently shut in.

At the reopened hearing, LCS presented bottomhole pressure tests run on two of its wells completed in the field. The bottomhole pressure tests showed an additional pressure decline in the reservoir to approximately 1000 psi. This directly contradicted LCS' prior conclusion that the reservoir pressure would remain constant at 1200 psi as a result of the strong water drive in the reservoir. LCS claimed that the additional drop in pressure was because the total fluid withdrawal from the reservoir exceeded the renewal capacity of the drive mechanism. LCS' current exhibits depict the pressure dropping to 900 psi and then stabilizing.

LCS also argued that correlated PVT data for the oil in the reservoir suggests that the current production is over 90% derived from the influence of the water drive. Finally, LCS presented additional production history to support its claim that the water cut is increasing in the field.

LCS also claimed that its applications for exceptions to Rule 37 are justified in light of the decision of the Texas Supreme Court in *Amoco Production Co. v. Alexander*, 622 S.W.2d 563 (Tex. 1981). LCS contends that the *Amoco* court specifically recognized that lessees are obligated to seek Rule 37 exceptions as close as 50 feet from an offsetting lease line in order to protect correlative rights of a down dip lease in a water drive reservoir.

### **PROTESTANT'S POSITION AND EVIDENCE**

Chisolm argued that LCS did not present any new data which supported its water drive theory, and that the additional bottomhole pressure readings are further evidence that the field is not under the influence of a strong water drive, although Chisolm concedes that a water drive is contributing to a combined drive mechanism in the field. Chisolm presented evidence that other solution gas fields in the same area as the Mulberry Canyon (Cisco) Field had recovery factors of 51%.

Chisolm also claimed that wells at regular locations could still produce recoverable reserves in excess of 48,900 barrels per well based on the performance of the Adkins Morrow No. 1. This well has continued to produce 100 barrels per day at a location which is both lower on structure and has a thinner pay interval than regular locations on the Brooks Unit.

Chisolm also reemphasized that the production history for the Brooks No. 3 may be explained by an inefficient completion technique. Chisolm noted that LCS did not make any attempt to recompleat its Brooks No. 3 well to make the well a more efficient producer. LCS instead opted to shut in the well pending the Commission's determination. Chisolm argued that if LCS truly believed the field was under the influence of a strong water drive, that LCS would have: 1) accepted the examiners'

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prior recommended decision instead of reopening the hearing; 2) drilled and completed wells at previously permitted regular locations; and 3) recompleted the Brooks No. 3 well.

### **EXAMINERS' OPINION**

To establish entitlement to an exception to Rule 37 to prevent confiscation, an applicant must show that, absent the applied-for well, it will be denied a reasonable opportunity to recover its fair share of hydrocarbons currently in place under the lease, or its equivalent in kind. The applicant must satisfy a two pronged test: 1) the applicant must show that it will not be afforded a reasonable opportunity to recover its fair share of hydrocarbons currently in place by drilling a well at a regular location; and 2) the applicant must show that the proposed irregular location is reasonable. Applicant does not claim that it is entitled to an exception based on waste.

It is the basic right of every landowner or lessee to a fair and reasonable chance to recover the oil and gas under their property as recognized by the Texas Supreme Court in *Gulf Land Co. v. Atlantic Refining Co.*, 131 S.W.2d 73, 80 (Tex. 1939). Denial of that fair chance is confiscation within the meaning of Rule 37. *Id.*

LCS' own evidence illustrated that viable regular locations exist on the Brooks Lease. Though regular locations exist on the subject lease, LCS claims that the influence of a strong water drive in the field on wells drilled downdip at regular locations will not allow LCS to recover its fair share of reserves. LCS contends that the only way it will recover its fair share of estimated reserves is to drill three wells within 50 feet of the lease line. Additionally, the placement of two of the wells requires an exception to the minimum between well spacing requirements for the field.

Because regular locations within the field are present on LCS' Brooks lease, the critical issue in determining whether Rule 37 exceptions should be granted is whether LCS can recover its fair share of reserves from the regular locations. The evidence presented fails to rule out the recovery of LCS fair share of reserves from regular locations on the lease.

LCS accurately asserts that bottomhole pressure readings are relied upon in determining the drive mechanism in a producing field. The examiners agree that this field is under the influence of a water drive. However, LCS argues that this fact and the *Amoco* decision justify its requested exceptions. This argument is fallacious. Establishing the influence of the water drive does not automatically entitle LCS to the requested exceptions to protect the correlative rights for the downdip locations. LCS must also show that it will not be afforded a reasonable opportunity to recover its fair share of oil currently in place by drilling wells at regular locations. LCS fails to meet this burden.

LCS did not present new evidence at the reopened hearing addressing its original estimate that the LCS Brooks No. 3 well would only recover 8,000 barrels of the remaining 95,000 to 105,000 recoverable reserves underlying the Brooks Lease. No estimate is given for the recovery by additional wells drilled at regular locations.

The production history for the eight wells in the field drilled at regular locations at the same or structurally lower elevations show that structure is not the only element influencing performance in this field. The Adkins Morrow No. 1 continues to produce at the maximum allowable rate of 100 barrels per day. This well is lower on the structure and has less pay than regular locations on the Brooks Lease. In fact, in the December hearing LCS estimated the current oil-water contact at -1575 feet, three feet higher than the top perforations in the Adkins Morrow No. 1 well. The examiners believe that this well's performance should reflect the encroachment of the oil water contact instead of showing continued production at the maximum allowable rate, particularly when one also considers the porosity and permeability in this field. This performance history certainly suggests that regular locations on the Brooks Lease, if completed efficiently, should show similar production capability.

LCS attempted to discount the performance of the Adkins Morrow No. 1 well due to its location on the eastern edge of the field. However, the performance of three other wells on the western flank of the field, the Chisolm Brooks No. 1, the Chisolm Texaco No. 1A, and the LCS Morrow No. 1 well, further suggest that wells at regular locations on the Brooks lease would provide LCS with a reasonable opportunity to recover any remaining reserves. The two Chisolm wells are producing an average of 70 barrels per day at structurally lower elevations than regular locations on the Brooks Lease. Additionally LCS' Morrow No. 1 well is producing 35 barrels per day. LCS estimated the total cumulative production for its Morrow No. 1 well at of 32,000 barrels, even though the well is 6' downdip of regular locations on the Brooks Lease. Based on this information, the examiners conclude that three wells at regular locations on the Brooks Lease would recover at least three times the estimated total cumulative production from Morrow No. 1 well, or approximately 96,000 barrels. This falls within the range of estimated remaining recoverable reserves which LCS provided at the August hearing.

Finally, LCS did not refute at the original hearing or at the reopened hearing, Chisolm's assertion that the performance of the Brooks No. 3 was not an accurate gauge for the performance of wells at regular locations on the Brooks Lease. If a strong water drive was influencing production in the field, the seven wells completed at the same or lower elevations should not be producing better than the LCS Brooks No. 3.

LCS also suggests that the result in this case is directly controlled by the decision of the Texas Supreme Court in *Amoco Production Co. v. Alexander*, supra. LCS suggests that the Amoco decision recognizes that in order to protect correlative rights, Rule 37 exception locations are justified for downdip operators in water drive reservoirs. LCS' interpretation of *Amoco* stretches the holding in the case beyond the actual determination reached by the court.

*Amoco* involved a suit by royalty interest owners down dip in a water drive reservoir against the lessee Amoco Production Co. The royalty interest owners alleged that Amoco breached its implied covenant to act as a reasonably prudent operator. The royalty interest owners asserted that Amoco's actions were motivated by a 1/8th royalty burden for Amoco's updip leases versus the 1/6th royalty burden on the downdip leases.

Contrary to LCS' position, the Supreme Court did not suggest wells at exception locations for down dip operators in water drive reservoirs would be entitled to exceptions to Rule 37. The decision primarily focused on Amoco's conflict of interest:

The conflicts of interest of Amoco, as a common lessee, cause us concern. The Alexander leases provided for a 1/6th royalty while Amoco's updip leases provided for a 1/8th royalty. There is no economic incentive for Amoco to increase production on the Alexander lease because it will eventually recover the Alexander's oil updip. *Amoco* at p. 569.

The court further noted:

These conflicts would not occur if Amoco was not a common lessee (lessee common to downdip and updip lessors). If the Alexanders were the only Amoco lessor, their interest would more nearly coincide. Amoco's interest would be to capture the most oil possible from the Alexander leases before they watered out. *Ibid*.

It is clear that Amoco's breach of the implied covenant was not limited to the failure to apply for a Rule 37 exception. It was the conflict of interest seen in Amoco's failure to: 1) maintain production on the down dip leases while increasing production on the up dip leases; 2) rework its existing down dip wells; and 3) drill additional wells or replacement wells, that together led the court to conclude that Amoco breached the implied covenant. While the failure to obtain a Rule 37 exception was part of the evidence establishing the breach, the court did not conclude that downdip operators in a water drive reservoir were entitled to exceptions to Rule 37 to protect their correlative rights.

Additionally, the *Amoco* decision is distinguishable from this case based on the actions Amoco did take. Amoco actually drilled wells at regular locations and produced them. LCS has failed to engage in the same course of action despite the evidence that wells at similar or lower height on structure continue to produce from the reservoir.

Exceptions to Rule 37 are not granted to maximize an operator's recovery at the expense of offset operators, but to provide a reasonable opportunity to recover the oil and gas on an operator's lease. LCS' own maps depict regular locations within the field's productive limits. LCS was required to produce evidence to rule out any regular locations in order to justify its applications for Rule 37 exceptions. LCS did not show that regular locations will not allow it the reasonable opportunity to recover the reserves on its Brooks Lease. Additionally, the *Amoco* decision does not require that where the owner of the lease will have a reasonable opportunity to recover their fair share from regular locations that Rule 37 exceptions be granted to downdip leases. Accordingly, LCS' applications should be denied.

Based on the record in these dockets, the examiners recommend adoption of the following Findings of Fact and Conclusions of Law:



**FINDINGS OF FACT**

1. At least 10 days notice of this hearing was given to the designated operator, all lessees of record for tracts that have no designated operator, and all owners of record of unleased mineral interests for each affected adjacent tract.
2. LCS Production Company ("LCS"), filed applications to drill its Nos. 1, 2 and 4 wells, on the Brooks Lease ("subject lease"), in the Mulberry Canyon (Cisco) Field, Nolan County, Texas.
3. The Mulberry Canyon (Cisco) Field is subject to spacing requirements of 330 feet minimum spacing to the nearest lease line and 933 feet minimum spacing between wells. The subject lease is rectangular and locations regular to lease-lines are available. All three proposed locations are 50 feet west of the eastern lease line.
4. With respect to minimum between well spacing requirements, the proposed No. 2 well is located only 555 feet from the Brooks No. 3 which is currently producing from the Mulberry Canyon (Cisco) Field. The proposed No. 4 well is located only 396 feet from the Brooks No. 3. To comply with between well spacing requirements, LCS agreed to shut in the Brooks No. 3 upon completion of either the Brooks No. 2 or Brooks No. 4. Additionally, Well No. 2 and Well No. 4 are only 759 feet apart. Accordingly, an exception to the between well spacing requirement is also necessary if both wells are permitted at the proposed locations.
5. The applications are protested by Chisolm Exploration, Inc. ("Chisolm"). Chisolm is the operator of the offset tracts located to the east and north of the subject lease.
6. There are regular locations on the Brooks lease that would encounter the Mulberry Canyon (Cisco) Field.
7. At original conditions, the oil-water contact in the field was at -1580 feet. The oil-water contact was estimated at -1575 feet in the December 17, 2001 hearing.
8. The oil-water contact is still 6-7 feet lower than regular locations depicted on the Brooks Lease in the Mulberry Canyon (Cisco) Field on LCS' structure maps.
9. Regular locations exist which provide LCS with a reasonable opportunity to recover the reserves currently underlying the Brooks Lease in the Mulberry Canyon (Cisco) Field.
10. The production histories for the Chisolm Brooks No. 1, the Chisolm Texaco Fee 1A and the LCS Morrow No. 1 indicate that these three wells are producing significantly more oil with a significantly lower water cut than the LCS Brooks No. 3. The Brooks No. 3 is either structurally higher or at the same elevation as the other three wells. The production history for the LCS Brooks No. 3 likely reflects an inefficient completion technique.

**CONCLUSIONS OF LAW**

1. Proper notice of hearing was timely given to all persons legally entitled to notice.
2. All things have occurred to give the Commission jurisdiction to decide this matter.
3. LCS failed to prove that wells at locations regular to lease lines will not provide it with a reasonable opportunity to recover the reserves currently in place under the Brooks Lease.
4. Exceptions to Statewide Rule 37 for the three wells at the applied-for locations are not necessary to prevent confiscation or waste.

**RECOMMENDATION**

LCS failed to establish that it is entitled to any of the three Rule 37 exceptions in order to prevent confiscation or waste. The examiners therefore recommend that the subject applications be denied in their entirety in accordance with the attached final order.

Respectfully submitted,

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Mark J. Helmueller  
Hearings Examiner

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Donna Chandler  
Technical Examiner